MUNICIPAL ENGINEERING

INDEX

JULY — DECEMBER, 1914

VOLUME XLVII

ENGINEERING PUBLISHING COMPANY
INDIANAPOLIS, IND.
NEW YORK, N. Y. CHICAGO, ILL.

INDEX
MUNICIPAL ENGINEERING

VOL. XLVII. JULY — DECEMBER, 1914.

Capital Letters, E., Q., W., etc., Indicate Department Under Which Articles are Classified.

Acoustic Difficulties in Auditorium Corrected 485
American Highway Assn., Road Congress of the 474
American Road Congress, Government Exhibit at 474
Alley, Expansion Joint in. Q....214
American Society of Municipal Improvements, Abstracts of Papers Presented at the October Convention at Boston...336
American Society of Municipal Improvements, the Boston Convention of...245, 404
Arch Highway Bridge, Ribbed....152
Argentine City, A Thriving....436
Asbestos Expansion Joint....413
Asphalt and Contracting Material, Special Five-Ton Saurer Tractor and Trailer for Handling Hot....410
Asphalt, Bermudez Road....32.
Asphalt Cement Can Be Prevented, Burned. W. 125, 294
Asphaltic Concrete, Topeka Specification. Q. 292
Asphaltic Materials for Road Construction, by Alfred A. Berkowitz, Sheffield Scientific School, Yale University....464
Asphalt Pavement, Fibered....234
Asphalt Pavement, Information About...329
Asphalt Paving Plant, Montreal's Portable 73
Asphalt Paving Repairs in St. Paul, Minn. 229
Asphalt Plant at Pittsburgh, Pa., New Municipal, by Norman S. Sprague, Superintendent of Construction, Department of Public Works....460
Asphalt Plant, Municipal, Chicago, Ill., by Walter G. Leininger....184
Asphalt Plant, Steam Melting....484
Asphalt Production, Increase in....463
Asphalt Plant Resurfacing Macadam Roads in Chicago, Portable, by Walter G. Leininger 263
Asphalt Quite Unnecessary, Burned. W..216
Asphalts, European Rock, by J. W. Howard 230
Asphalt Specifications, Empirical Requirements in, by Leroy M. Law.... 51
Asphalt Specifications, Variations from the Standard 53
Australia's New Capital, Building, by W. D. Hornaday 381
Automobile Street Cleaning Machines....104

Band, San Francisco's Municipal....317
Banking and Credit System in South America 285
Bath an Americanizer, The Public....403
Bathing Beach in Denver, A....451
Bear Pit, A Safe Fence for....409
Bell Warning at Garage Exit, Automatic. W. 392
Bill Boards, Suppression of....183
Bitulithic on Macadam on Marlborough Street, Boston, Mass.... 90
Bitulithic Pavement, The, by Don Montell Forester, Ga. School of Technology.... 3
Bitulithic, Rochester Can Specify....455
Bitumens, Unloading Tank Cars of Road. Q. 215
Bituminous Concrete in the Roland Park-Guilford District, by J. C. Little.... 56
Bituminous Macadam Roads in Rhode Island, by Irving W. Patterson, Chief Engr. of Rhode Island State Board of Roads, Providence, R. I....437
Bituminous Mixing Plant, Semi-Portable.. 76
Bituminous Pavements, Gas Leaks Under, by Geo. C. Warren, Boston, Mass....351
Bituminous Streets Without Sprinkling, Cleaning, by Walter F. Slade....361
Boats for the New York Barge Canal. E. 211
Bond Issue Voted Down, Dayton....452
Bonds at Higher Interest Rate, Los Angeles Opposes Refunding of Electric Railway 321
Books of Municipal Statistics Wanted. Q. 388
Borax Will Prevent Breeding of Flies...131
Brick Convention, The Buffalo....243, 322
Brick Has Phenomenal Popularity, Wire-Cut-Lug 412
Brick Highway in Continuous Use, An Unsupported, by Herschel H. Macdonald 227
Brick Pavement at Elmira, N. Y., Buckling of. W....50, 221
Brick Pavements, Slab Tests of.... 54
Brick Pavements, The Filler for....398
Brick Road as a Monument, A....317
Brick Street Construction, Vitrified, by Will P. Blair, Cleveland, Ohio....364
Bridge, A Ribbed Arch Highway....152
Bridge at Pasadena, Cal., The Colorado Street 378
Bridge, St. Paul, Minn., The Earl Street..397
Bridge Specifications of the Illinois State Highway Department 134
Buckeye-Mobile, The 408
Buckling of New Brick Pavement at Elmira, N. Y. W....50, 221
Building Ordinance for Small City. Q....212
Burned Asphalt Cement Can Be Prevented. W. 49, 125, 294
Burned Asphalt Quite Unnecessary. W..216
Business Outlook, The. W.... 41

Calcium Chloride in Road Maintenance...302
Canal, Boats for the New York Barge. E. 211
Capital, Building Australia's New, by W. D. Hornaday 381
Cars, Methods of Unloading Tanks, by Philip P. Sharples 256
Cash Basis, New York Must Go On....274
Cells for Jails and Prisons, Steel.... 78
Cement Block House, Waterproofing Paint for. Q....33, 391
Cement Confiscated in Egypt, American..475
Cement for Argentina, Portland....314
Cement in Building Construction, Medusa 328
Cement Manufacture, Coal Pulverizing Machinery for. Q....291

700 415

628.05M92

v.47 iii c.1

Cemetery, Information About Management of Municipal. Q.....293
Chemical Periodicals. Q.....450
City Government in New Zealand, by W. D. Hornaday, Austin, Tex..... 98
City Manager, Dayton Under a.....241
City Manager, The, by Paul E. Kressley, City Engr., Englewood, Cal..... 15
Civil Service, Dismissal of Employes Under 473
Civil Service Examinations...68, 326, 406, 478
Civil Service Examinations.....247
Cleaning Bituminous Streets Without Sprinkling, by Walter F. Slade.....361
Cleaning Machines, Automobile Street...104
Cleaning and Refuse Disposal in Philadelphia, Street, by Wm. H. Connell.... 19
Cleaning Machines, Pneumatic Street. Q. 388
Cleaning Methods and Results, Street, by Edward D. Very.....176
Clean-Up Week, Philadelphia's Second. W. 218
Coli in Water Supply, Bacillus, by Joseph Race 12
College of Engineering on Co-operative Plan 64
Comfort Station, A New York Public.....454
Comfort Station in New York, Public....318
Commission Government, Denver..... 63
Commission Government in Grafton, W. Va. 64
Commission Government of Cities, Ancient. E. 121
Competition on Plans for Neighborhood Center 157
Concrete, Expansion of. Q.....289
Concrete Houses, How to Build. Q..... 33
Concrete Mixer Earns Large Bonus in South America 412
Concrete Pavement Foundation Over Trench, Reinforced 471
Concrete Pavement, Laying.....298
Concrete Pavements, Increase in Use of..308
Concrete Pavements, Repairing.....297
Concrete Pavements, Repairs to.....393
Concrete Sidewalk Work, A Mixer Designed for 163
Concrete Roads and Streets in the United States 61
Concrete Street Paving, Reinforced.....165
Concrete Streets on Steep Grades in Mankato, Minn. 451
Concrete Trestle in California Highway.. 64
Conduit, Fibre 485
Conduit Systems, Municipal. Q.....450
Conference on Industrial Welfare and Efficiency 405
Conscience in Municipal Engineering. W. 47
Contractor's Work, The Kissel-Kar in...168
Cost, Better Roads Cut Living..... 62
Cost of Good Roads, The.....151
Cost of Maintenance of Horse and Motor Fire Apparatus 140
Cost of Supervision of Highway Construction 395
Cost, What the Snow.....134
Cotton Buy a Bale of.....332
Credit System in South America, Banking and 285
Creosoting Plant Proposed, Municipal. Q..123

Dayton Bond Issue Voted Down. W.....452
Discounts Its Bills, Minneapolis.....325
Dismissal of Employes Under Civil Service 473
Drainage, City and County Highway, by Frank Reed 371
Dryer, the Seebee 168

Economic Side of Good Roads Day.....120
Economics of Sewage Filtration, by Geo. W. Fuller, Consulting Engineer, New York City 347
Education in Municipal Engineering, How to get an. Q..... 34
Elections, Recent Charter.....243
Electrical Development, The Society for.. 66
Electricity, Denatured 159
Electric Lighted Fountains, Who Design an. Q.....215
Electric Light Service for Freeport, Tex. W. 392
Electric Plant Has Saved Consumers $731,083, Pasadena's Municipal.....473
Electric Railway Bonds at Higher Interest Rate, Los Angeles Opposes Refunding of 321
Electric Rates in Houston, Texas, Controversy Over, by Paul H. Sheldon.....275
Electrolytic Sewage Treatment. E.....287
Electrolytic Sewage Treatment in the Boro of Queens, New York City, by Maurice E. Connolly, Pres. of Boro of Queens 279
Engineering, How to get an Education in Municipal. Q..... 34
Engineering on Co-operative Plan, A College of 64
Engineers, Geology for.....160
Europe's Madness, Our Opportunity. E..210
Excavation with a Revolving Shovel, Sewer 65
Expansion Joint, Asbestos.....413
Expansion Joint in Alley. Q.....214
Expansion of Concrete. Q.....289
Export Goods Must be the Best.....409
Exports from the United States Go, Where 267
Exposition, The San Diego.....475

Fans for Fighting Fire. W.....392
Fence for Bear Pit, A Safe.....409
Fertilizer from Garbage, Plants Making Q. 292
Filler for Brick Pavements, The.....398
Filters, Economics of Sewage, by Geo. W. Fuller 347
Filters, Limitations of Water, by George W. Fuller, Consulting Engr., New York City 458
Filtration for Detroit, Water..... 63
Filtration for Little Falls, N. Y., Water..157
Financing Public Improvements in Portland, Oregon 298
Fire Apparatus, Cost of Maintenance of Horse and Motor.....140
Fire, Fans for Fighting. W.....392
Fire Fighters, Kissell-Kars as..... 73
Fire Prevention. E.....121
Fire Protection at the Panama-California Exposition 237
Fire Protection, Automatic Sprinklers for.411
Fire, Shingle Roofs Spread the Salem....135
Fires, Personal Responsibility for.....241
Flies, Borax Will Prevent Breeding of....131
Form of Report of Work Done in City Street and Sewer Repair and Maintenance. W..... 44
Foundation Over Trench, Reinforced Concrete Pavement 471
Fountains, Who Design and Build Electric Lighted. Q.....215
Fountains, Who Designs Park. Q....293, 390

Garage Exit, Automatic Bell Warning at. W. 392
Garbage Collection and Disposal Ordinance and Methods, Vancouver. W.... 41
Garbage Disposal by the Hirsh Chemical System 131
Garbage Incinerator and Steam Generator, The Harris Municipal..... 72
Garbage Incinerators and Destructors, by Sterling H. Bunnell, New York City....114
Garbage, Methods of Collection and Disposal of. Q.....292
Garbage, Plants Making Fertilizer from. Q. 292
Garbage, Profitable Conversion of City.... 25
Garbage Reduction Systems. Q.....291
Gas Cluster Lighting.....147
Gas for Street Illumination High Pressure 235

Gas Leaks Under Bituminous Pavements, by Geo. C. Warren, Boston, Mass.....351
Gas Lighting Tests at Montevideo.....321
Gas Supply, Rules of New Hampshire Public Service Commission Respecting .319
Geology for Engineers.....160
Grader, Clark's Traction.....481
Grads, Trigonometric Tables of. Q.....215, 295, 391
Granite Block Pavements in Philadelphia, Recent 306
Granite Block Pavements, Recut, by Wm. A. Howell, Engr. of Streets and Highways, of Newark, N. J.....467
Granite Block Paving in Bronx Boro, New York City, Recut, by George C. Thompson, Engr. of Highways.....344
Granite Blocks, Paving with Small.....393
Guide Post in England.....308
Gypsum Products 408

Highway Bridge, A Ribbed Arch.....152
Highway Commission, Objects of the Indiana State 153
Highway, Concrete Trestle in California.. 64
Highway Construction, Cost of Supervision of 395
Highway Construction, Prizes for Essays on 476
Highway Drainage, City and County, by Frank Reed 371
Highway Study, Prizes for.....160
Hose that Will not Crack..... 77
Hypochlorite as a Water Disinfectant, Calcium, by E. J. Tully.....137

Illumination, High Pressure Gas for Street 235
Imhoff Tank, Septic Tank vs. W.....126
Improvements in El Paso, Tex. W.....392
Incinerator and Steam Generator, The Harris Municipal Garbage..... 72
Inflammable Wastes in Sewers, by N. S. Sprague, Supt. of Construction, Pittsburgh, Pa. 336

Jails and Prisons, Steel Cells for..... 78

Knox Motor Co. is the Title of the Reorganization, The 76

Lamps for Ornamental Street Lighting, Strong Incandescent 146
Lamps of High Efficiency, Tungsten, by Irving Langmuir and J. A. Orange.....143
Latin-American States, How to do Business in. W.....296
Latin-American Trade Situation.....406
Lawn, How to Make a New.....251
Leaks Under Bituminous Pavements, Gas, by Geo. C. Warren, Boston, Mass..351
Level, Combination Pocket Rule and.....334
Leveling Rod Repainting. C.....293
Licenses, Ordinances Providing for Vehicle. Q.....124
Light and Water Plant of Opelousas, La., by A. G. Jones, Supt.....202
Lighting, Gas Cluster.....146
Lighting in Seattle, Ornamental..... 29
Lighting, Muscatine, Iowa, Investigated Municipal 63
Lighting, Strong Incandescent Lamps for Ornamental Street 146
Lighting the Lincoln Highway.....321
Lighting Tests at Montevideo, Gas.....321
Lights at Cost of Abutting Property, Ornamental. Q..... 34
Light Service for Freeport, Tex., Electric. W. 392
Liquors, Ordinance Prohibiting Free Lunch with Sale of. Q.....34, 128
Lufkin Catalog, New..... 72

Macadam on Marlborough Street, Boston, Bitulithic on 90
Macadam Roads in Chicago, Portable Asphalt Plant, Resurfacing, by Walter G. Leininger 263
Macadam Roads in Rhode Island, by Irving W. Patterson, Chief Engr. of Rhode Island State Board of Roads, Providence, R. I., Bituminous.....437
Main for Atlantic City, N. J., Water Supply 445
Manufacturers Available, Suggestions to.408
Market, Ordinance Establishing Municipal. Q.....290
Markets, Chicago Municipal.....239
Markets, The Manufacturer and the New. E. 286
Meter Reading Records. Q.....293
Meter Simplicity, Water.....248
Metric Conversion Tables. Q..... 35
Mixer Designed for Concrete Sidewalk Work 163
Mixer Earns Large Bonus in South America, Concrete 412
Mixing Plant, Semi-Portable Bituminous 76
Motor and Bicycle Tire Business is Increasing 413
Motor Car Construction, Municipal. E.... 32
Motor Fire Apparatus, Cost of Maintenance of Horse and.....140
Motor Omnibuses in Boro of Queens, N. Y.167
Motor, Stock Yard Refuse Removed by...270
Motor Street Sprinkler and Flusher.....330
Motor Truck for Dairy Products, A Refrigerator 412
Motor Truck for Oiling Roadways, by Frank Reed, Los Angeles, Cal.....442
Motor Truck for Sewer Cleaning Gang....332
Motor Trucks for Market Delivery. W....391
Motor Truck, Using the.....249
Municipal Asphalt Plant at Pittsburgh, Pa., New, by Norman S. Sprague, Superintendent of Construction, Department of Public Works.....460
Municipal Asphalt Plant of Chicago, Ill., by Walter G. Leininger.....184
Municipal Band, San Francisco's.....317
Municipal Cemetery, Information about Management of. Q.....293
Municipal Conduit Systems. Q.....450
Municipal Creosoting Plant Proposed. Q..123
Municipal Electric Plant Has Saved Consumers $731,083, Pasadena's.....473
Municipal Engineering, Conscience in. W. 47
Municipal Engineering, How to get an Education in. Q..... 34
Municipal Government. E.....449
Municipal Improvements are not Diminished by the War. E.....385
Municipal Improvements in Peru.....471
Municipal Lighting, Muscatine, Iowa, Investigates 63
Municipal Markets, Chicago.....239

MUNICIPAL MATTERS IN COURT.

Assessing Cost of Street Improvement Affirmed, Validity of St. Louis Method of. L.....130
Assessment Liability on Owner at Time Sewer Was Ordered, Sewer. L.....130
Assessment, Ornamental Lighting by. L. 319
Automobile Traffic, Regulation of. L..318
Bond Interest and Tax Rate Limit, City May Provide for Future Private Lighting. L. 129
Bond-Terms for Constructing Public Works. L. 317
Borrow Money, City Must Have Charter Authority to. L.....455
Bridge, Authority for Changes in Contract for. L.....224
Catch Basin Cover, City Liable for Injury from Tipping of. L.....456
Charter Authority to Borrow Money, City Must Have. L.....455
City Can Build Competing Water Works. L. 130
City for Defective Sidewalk, Liability of. L. 224

City Liable for Damage from Breaking of Water Tank or Reservoir. L.....129
City Liable for Injury from Tipping of Catch Basin Cover. L.....456
City Liable for Neglect of Contractor. L. 456
City May Provide for Future Private Lighting Tax Rate Limit and Bond Interest. L. 129
City Must Have Charter Authority to Borrow Money. L.....455
City Must Pay for Trees Removed. L. 223
City Must Provide Outlet for Surface Water in Improving Street. L.....129
Contract, Acceptance and Substantial Performance of. L.....316
Contract, Changes in Plans for Sewer After Letting Do Not Vitiate. L.....130
Contract for Bridge, Authority for Changes in. L.....224
Contract Lease of Water Works Invalid if Really Unauthorized, Purchase. L..223
Contractor, City Liable for Neglect of. L. 456
Contract to Collect Garbage Legal, Exclusive. L. 224
Cost of Street Improvement Affirmed, Validity of St. Louis Method of Assessing. L. 130
Cost of Water Mains May Be Refunded to Property Owners. L.....455
Damage by Pollution of Stream by Septic Tank Effluent, Liability for. L...456
Damage from Breaking of Water Tank or Reservoir, City Liable for. L.....129
Damage to Property by Sewer Excavation, Liability for. L.....130
Dedication of Streets, Methods of. L...224
Electric Company Cannot Refuse Service. L. 315
Eminent Domain Power Transferable to Agents. L. 130
Excavation Liability for Damage to Property by Sewer. L.....130
Fire Loss, Liability of Water Company for. L. 129
Franchise Annulled, Water Company's. L. 456
Funds for Water Rental, Town Cannot Transgress Law Fixing Limit of. L..223
Garbage Legal, Exclusive Contract to Collect. L. 224
Gas Rates Below Cost, Massachusetts City Cannot Reduce. L.....315
Hydrant Rental Beyond Contract, if Used, Village Liable for. L.....223
Injury from Tipping of Catch Basin Cover, City Liable for. L.....456
Injury on Part of Street Not Improved, Liability for. L.....130
Lease of Water Works Invalid if Really Unauthorized, Purchase Contract. L..223
Liable for Injury from Tipping of Catch Basin Cover, City. L.....456
Liable for Neglect of Contractor, City. L. 456
Liability for Damage by Pollution of Stream by Septic Tank Effluent. L...456
Liability for Damage to Property by Sewer Excavation. L.....130
Liability for Injury on Part of Street Not Improved. L.....130
Liability for Injury on Sidewalk Constructed on an Embankment. 129
Liability of City for Defective Sidewalk. L. 224
Liability of Water Company for Fire Loss. L. 129
Liability on Owner at Time Sewer Was Ordered, Sewer Assessment. L.....130
Lighting by Assessment, Ornamental. L. 319
Lighting Tax Rate Limit and Bond Interest. City May Provide for Future, Private. L. 129
Mains May Be Refunded to Property Owners, Cost of Water. L.....455
Neglect of Contractor, City Liable for. L. 456
Ordinance to Contrary Unjust, Tenant Must Pay Water Rent. L.....129
Patented Material for Pavement Is Legal, Selection of. L.....223
Pavement Is Legal, Selection of Patented Material for. L.....223
Pollution of Stream by Septic Tank Effluent, Liability for Damage by. L. 456
Railroad for Street Improvement, Taxing. L. 456
Rates Below Cost, Massachusetts City Cannot Reduce Gas. L.....315
Refunded to Property Owners, Cost of Water Mains May Be. L.....455
Reservoir, City Liable for Damage from Breaking of Water Tank or. L.....129
Roads Law Valid, Illinois Good. L.....134
Septic Tank Effluent, Liability for Damage by Pollution of Stream by. L. 456
Service, Electric Company Cannot Refuse. L. 315
Sewer After Letting Do Not Vitiate Contract, Changes in Plans for. L...130
Sewer Assessment Liability on Owner at Time Sewer Was Ordered. L.....130
Sewer Excavation, Liability for Damage to Property by. L.....130
Sidewalk Constructed on an Embankment, Liability for Injury on. L.....129
Sidewalk, Liability of City for Defective. L. 224
Street, City Must Provide Outlet for Surface Water in Improving. L.....129
Street Improvement Affirmed, Validity of St. Louis Method of Assessing Cost of. L. 130
Street Improvement, Taxing Railroad for. L. 456
Street Not Improved, Liability for Injury on Part of. L.....130
Streets, Methods of Dedication of. L..224
Tank or Reservoir, City Liable for Damage from Breaking of Water. L. -.....129
Taxes Valid Return for Water, Remission of City. L.....316
Taxing Railroad for Street Improvement. L. 456
Tax Rate Limit and Bond Interest, City May Provide for Future Private Lighting. L. 129
Tenant Must Pay Water Rent, Ordinance to Contrary Unjust. L.....129
Trees Removed, City Must Pay for. L. 223
Water Company's Franchise Annulled. L. 456
Water Company for Fire Loss, Liability of. L. 129
Water in Improving Street, City Must Provide Outlet for Surface. L.....129
Water Mains May Be Refunded to Property Owners, Cost of. L.....455
Water, Remission of City Taxes Valid Return for. L.....316
Water Rental, Town Cannot Transgress Law Fixing Limit of Funds for. L...223
Water Rent, Ordinance to Contrary Unjust. Tenant Must Pay for. L.....129
Water Tank or Reservoir, City Liable for Damage from Breaking of. L.....129
Water Under Property Not Acquired with Property, Right of Percolating. L. 316
Water Works, City Can Build Competing. L. 130
Water Works Invalid if Really Unauthorized, Purchase Contract Lease of. L. 223

Municipal Motor Car Construction. E.... 32
Municipal Ownership in Belfast, Ireland 142, 209
Municipal Quarries. Q.....124
Municipal Street Railway of Edmonton, Alberta, Canada 110
Municipal Swimming Pools. Q..30, 127, 313

New Zealand, City Government in, by W. D. Hornaday, Austin, Tex..... 98
New York, A Much Greater.....243
New York Public Comfort Station. A....454
Nitrates May Be Produced in United States 390
Novaculite, Who Supplies. W..... 47
Nozzle, Non-Corrosive Metal for Spraying. Q. 33, 156

Oiler, Hot Penetration Road..... 75
Oiling Roadways, by Frank Reed, Los Angeles, Cal., Motor Truck for.....442
Ordinance and Methods, Vancouver Garbage Collection and Disposal. W..... 41
Ordinance Establishing Municipal Market. Q. 290
Ordinance for Small City, Building. Q....212
Ordinance Prohibiting Free Lunch with Sale of Liquors. Q.....34, 128
Ordinance Regulating Moving Picture Shows. Q.....35, 390
Ordinances Providing for Vehicle Licenses. Q. 124
Organic Matter in Reservoirs, Regulating Growth of. W.....295

Paint for Cement Block House, Waterproofing. Q.....33, 391
Panama-California Exposition at San Diego 329
Panama-California Exposition, Fire Protection at the.....237
Panama-Pacific Exposition, Universal Portland Cement Co. at the.....163
Park Fountains, Who Designs. Q...293, 390
Parking Down Center of Wide Street. Q. 35
Park Signs, Wording of. Q..... 33
Pavement Economy, by H. D. Pullar, Engineering Chemist, Detroit, Mich.....190
Pavement Foundation Over Trench, Reinforced Concrete 471
Pavements, Evidence as to.....414
Pavements, Gas Leaks Under Bituminous, by Geo. C. Warren, Boston, Mass.....351
Pavements in Philadelphia, Recent Granite Block 306
Pavements, Recut Granite Block, by Wm. A. Howell, Engr. of Streets and Highways, of Newark, N. J.....467
Pavements, Repairs to Concrete.....393
Pavements, The Filler for Brick.....398
Pavement, The Perfection of the Modern Street, by Frank W. Cherrington.....148
Paving in Bronx Boro, New York City, by George C. Thompson, Engr. of Highways, Recut Granite Block.....344
Paving in Des Moines, Ia., Street.....304
Paving on a Systematic Basis in New Orleans, Putting 297
Paving Plant, Montreal's Portable Asphalt 73
Paving Plant, The Development of the Road 479
Paving Practice Suggested by European Experience, Improvements in American 400
Paving Progress, Houston's..... 14
Paving with Small Granite Blocks.....393
Periodicals, Chemical. Q.....450
Personal Notes.....68, 160, 247, 407, 478
Petroleum, Literature on.....475
Picture Shows, Ordinance Regulating Moving. Q.....35, 390
Plans for Neighborhood Center, Competition on 157
Playground Apparatus, Fittings for. Q...450
Playground for Small City, A, by Warfield Webb, Chicago, Ill.....424
Plumbing Regulations in New Orleans...133
Poles for Line Wires, Preservative Treatment of 162
Police School, Pittsburgh's New, by Hartley M. Phelps.....261
Port Development, Jersey City..... 97
Preservatives in 1913, Consumption of Wood 65
Preservative Treatment of Poles for Line Wires 162
Prison Labor on West Virginia Roads....398
Prisons, Steel Cells for Jails and..... 78
Prizes for Essays on Highway Construction 476
Prizes for Highway Study.....160
Property, Ornamental Lights at Cost of Abutting. Q..... 34
Protecting the People. E..... 31
Publications Received.....67, 161, 247, 326, 407, 478
Pulverizing Machinery for Cement Manufacturer, Coal. Q.....291
Pumping Engine, The Toledo Water Works Have a New Large.....250
Pumps, Comparison of Centrifugal and Reciprocating 136

Quarries, Municipal. Q.....124

Rates for Public Utility Service. Q.....215
Rates for Sewerage Service. Q.....388
Rates, How to Fix Water. Q.....288
Rates in Houston, Texas, Controversy over Electric, by Paul H. Sheldon.....275
Rates, Regulation of Water.....457
Recovery Is Rapid. E.....448
Records, Meter Reading. Q.....293
Refuse Collection and Refuse Disposal Appliances in New York, Exhibit of Street Cleaning 325
Refuse Destructor at Clifton, Boro of Richmond, New York City.....207
Refuse Destructor at Savannah, Ga., by E. R. Conant, City Engr.....416
Refuse Destructor, Domestic.....413
Refuse Disposal, Street Cleaning and, in Philadelphia, by Wm. H. Connell..... 19
Refuse Removed by Motor, Stock Yard..270
Reinforced Concrete Pavement Foundation Over Trench.....471
Reinforced Concrete Street Paving.....165
Reservoirs, Regulating Growth of Organic Matter in 137, 295
Road Boss, The Passing of the, by John N. Edy 155
Road Builders' Convention, American....324
Road Building Equipment, Efficiency in.. 69
Road Building, Progress in.....162
Road Congress, Government Exhibit at American 474
Road Congress of the American Highway Association 474
Road Construction, Asphaltic Materials for, by Alfred A. Berkowitz, Sheffield Scientific School, Yale University.....464
Road Maintenance, Calcium Chloride in..302
Road Oiler, Hot Penetration..... 75
Road Paving Plant, The Development of the 479
Road Paving, Slag for.....300
Roads and Streets in the United States, Concrete 61
Roads as Crop Producers, Good.....109
Roads, Condition of New Jersey..... 80
Roads Cut Living Cost, Better..... 62
Roads Days, Economic Side of Good.....120
Roads for Traffic, Division of, by Francis Wood, Boro Engineer and Surveyor, Fulham, England 305
Roads, Goodrich Guides Motorists over 300,000 Miles of..... 78
Roads in Fairfax County, Va., Good..... 62
Roads in Rhode Island, Bituminous Macadam, by Irving W. Patterson, Chief Engineer of Rhode Island State Board of Roads, Providence, R. I.....437
Roads Movement in Northern Illinois, Good 318
Roads, Prison Labor on West Virginia..398
Roads, Relation of Traffic and Cost of Maintenance of 225
Road Standardization, Society of. Q.....388
Roads, The Cost of Good.....151
Roads, The South's Good..... 74
Roadways, Motor Truck for Oiling, by Frank Reed, Los Angeles, Cal.....442
Rochester Can Specify Bitulithic.....455
Rule and Level, Combination Pocket.....334

Sampling of Sewage, The, by G. Bertram Kershaw 309
Sand Blast, The.....329
San Diego Exposition, The.....475
Septic Tank for Small Communities. W..452
Septic Tanks, Individual. Q.....35, 127
Septic Tank vs. Imhoff Tank. W.....126
Sewage at Brooklyn, N. Y., Experimental Plant for Treating, by George T. Hammond, Engr. in Charge.....427
Sewage Disposal at Bergedorf, Germany, by Kenneth Allen, Consulting Engineer, New York City 197
Sewage Disposal, Expert on.....333
Sewage Disposal in Montana.....313
Sewage Disposal Plants, Care of. W.....220
Sewage Filters, Economics of, by Geo. W. Fuller 347
Sewage, The Sampling of, by G. Bertram Kershaw 309
Sewage Treatment, Electrolytic. E.....287
Sewerage of Vancouver District.....401
Sewerage Service, Rates for. Q.....388
Sewer Cleaning Gang, Motor Truck for...332
Sewer Construction in Des Moines, Ia.....158
Sewer Excavation with a Revolving Shovel 65
Sewer Repair and Maintenance, Form of Report of Work Done in City Street and. W..... 44
Sewers, Compulsory Connections with. Q..213
Sewers, Inflammable Wastes in, by N. S. Sprague, Supt. of Construction, Pittsburgh, Pa. 336
Sewer, Tar Removed from a.....330
Shingle Roofs Spread the Salem Fire....135
Shovel, Sewer Excavation with a Revolving 65
Sidewalk Work, A Mixer Designed for Concrete 163
Signs and Sign Posts, Street.....482
Signs, Makers of Metal Street. Q.....215
Signs, Wording of Park. Q..... 33
Signs, Zone of Quiet.....473
Slab Tests of Brick Pavements..... 54
Slag for Road Paving.....300
Slide Rule, A Pocket.....333
Smoke Consumers. Q.....389
Smoke Prevention Profitable, by W. C. Kirkpatrick, Chicago, Ill..... 26
Smoking Chimneys on Trial, Apparatus for Detecting 471
Snow Cost, What the.....134
Specifications, Empirical Requirements in Asphalt, by Leroy M. Law..... 51
Specifications for Street Cleaning Machinery 330
Specifications of the Illinois State Highway Dept., Bridge.....134
Specifications, Standard. E.....387
Specifications, Variations from the Standard Asphalt 53
Spraying Nozzle, Non-corrosive Metal for 33, 156
Sprinklers for Fire Protection, Automatic 411
Sprinkler and Flusher, Motor Street.....330
Sprinkling, Cleaning Bituminous Streets Without, by Walter F. Slade.....361
Statistics Wanted, Books of Municipal. Q. 388
Sterlization of Water Supply of Erie, Pa. 64
Stone, Voids in Crushed. W..... 47
Street and Sewer Repair and Maintenance, Form of Report of Work Done in City. W. 44
Street Cleaning and Refuse Disposal in Philadelphia, by Wm. H. Connell..... 19
Street Cleaning Machine, Specifications for 330
Street Cleaning Machines, Automobile...104
Street Cleaning Machines, Pneumatic. Q..388
Street Cleaning, Methods and Results, by Edward D. Very.....176
Street Cleaning, Refuse Collection and Refuse Disposal Appliances in New York, Exhibit of.....325
Street Construction, Vitrified Brick, by Will P. Blair, Cleveland, Ohio.....364
Street, Evolution of a Business.....150
Street Illumination, High Pressure Gas for 235
Street Lighting, Strong Incandescent Lamps for Ornamental.....146
Street, Parking Down Center of Wide. Q. 35
Street Pavement, The Perfection of the Modern, by Frank W. Cherrington.....148
Street Paving, Reinforced Concrete.....165
Street Railway, Municipal, of Edmonton, Alberta, Canada 110
Street Signs and Sign Posts.....482
Street Signs, Makers of Metal. Q.....215
Streets in the United States, Concrete Roads and 61
Streets on Steep Grades in Mankato, Minn., Concrete 451
Streets Without Sprinkling, Cleaning Bituminous, by Walter F. Slade.....361
Swimming Pools, Municipal. Q...35, 127, 313

Tables, Metric Conversion. Q..... 35
Tables of Grads, Trigonometric. Q..... .....215, 295, 391
Tampers, Who Makes Corrugated. Q.... 33
Tank Cars, Methods of Unloading, by Philip P. Sharples.....256
Tank Cars of Road Bitumens, Unloading. Q. 215
Tape Threader, Metallic.....249
Tar Removed from a Sewer.....330
Technical Associations 66, 161, 246, 325, 406, 477
Technical Schools.....67, 247, 326, 405, 477
Terminals, Chicago's Investigation of. E..122
Test of Tire, Taxicab.....413
Tests of Brick Pavements, Slab..... 54
Threader, Metallic Tape.....249
Tin Smelter Needed, A.....222
Tire Business Increasing, Motor and Bicycle 413
Tires at Ante-Bellum Prices, Goodyear...248
Tires, Economy in Truck.....327
Tires, Parcel Post Carried on Diamond..253
Tires, Taxicab Test of.....413
Tolls in Bavaria, Paving and Bridge.....262
Tractor and Trailer for Handling Hot Asphalt and Contracting Material, Special Five-Ton Saurer 410
Tractor on Hook and Ladder Truck, Kissel Kar 486
Trade Notes.....80, 334, 414, 486
Trade Opportunities in Other Countries..245
Trade Publications.....80, 167, 253, 414, 486
Trade Sentiment in South America.....322
Trade Situation, Latin-American.....406
Traffic and Cost of Maintenance of Roads, Relation of 225
Traffic, Division of Roads for, by Francis Wood, Boro Engineer and Surveyor, Fulham, England 305
Transit Facilities, Boston Well Supplied with Rapid. W..... 49
Transportation Facilities of Buenos Aires 242
Trench, Reinforced Concrete Pavement Foundation Over 471
Trestle in California Highway, Concrete. 64
Truck for Dairy Products,A Refrigerator Motor 412
Truck for Oiling Roadways, Motor, by Frank Reed, Los Angeles, Cal.....442
Truck for Sewer Cleaning Gang, Motor..332
Trucks for Market Delivery, Motor. W..391
Trucks in Los Angeles Water Department, Kissel 253
Trucks Carry Overload Regularly, Kissel.411
Truck, Using the Motor.....249
Truck, Weight of Jacksonville, Fla., Ladder 78
Tungsten Lamps of High Efficiency, by Irving Langmuir and J. A. Orange.....143

Vehicle Licenses, Ordinances Providing for. Q.....124
Vicksburg Water Works Situation.....454
Voids in Crushed Stone. W..... 47

War, Municipal Improvements Are not Diminished by the. E....385
Washer, Dull's Tubular 82
Wastes in Sewers, Inflammable, by N. S. Sprague, Supt. of Construction, Pittsburgh, Pa. 336
Water Cooling System, Ingenious....167
Water Department, Kissel Trucks in Los Angeles 253
Water Disinfectant, Calcium Hypochlorite as a, by E. J. Tully....137
Water Filters, Limitations of, by George W. Fuller, Consulting Engr., New York City 458
Walter Filtration for Detroit.... 63
Water Filtration for Little Falls, N. Y....157
Water Meter Simplicity....248
Water Plant of Opelousas, La., Light and, by A. G. Jones, Supt....202
Waterproofing Paint for Cement Block House. Q....33, 391
Water Rates, How to Fix. Q....288
Water Rates, Regulation of....457
Water Supply, Bacillus Coli in, by Joseph Race 12
Water Supply for Greater Winnipeg, New.135
Water Supply Mains for Atlantic City, N. J. 445
Water Supply of Erie, Pa., Sterilization of 64
Water Supply, Village Wants a. Q....123
Water Works Controversy, The Birmingham 240
Water Works Directory, A New....331
Water Works Expense, City's Portion of.206
Water Works Have a New Large Pumping Engine, The Toledo....250
Water Works Improvements at Toledo, Ohio 457
Water Works Situation, Vicksburg....454
Weed Killers, Makers of. Q....388
Wood Block Trouble in Europe, Removal of 303
Wood Preservatives in 1913, Consumption of 65

Zone of Quiet Signs....473